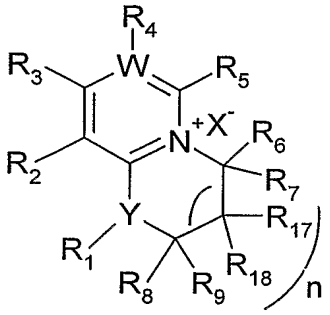
Claims:

1. A compound represented by Formula A:



wherein:

n = 0, 1, 2 or 3 such that:

when n = 0, the substituents R_{17} and R_{18} and the carbon atom to which they are bonded are not present; and

when n is 1, 2 or 3, the substituents R_{17} and R_{18} present on the respective carbon atom(s) may be the same or different and are independently selected from hydrogen or a substituent;

W is C or N, such that when W is N, R_4 is a lone pair of electrons;

Y is selected from N, O or S, such that:

when Y is O or S, R_1 is a lone pair of electrons; or

when Y is N, R_1 is selected from hydrogen, unsubstituted or substituted C_{1-7}alkyl, unsubstituted or substituted C_{1-7}cycloalkyl, unsubstituted or substituted C_{1-7}cycloalkyl-C_{1-7}alkyl, unsubstituted or substituted C_{5-20}aryl, unsubstituted or substituted C_{5-20}aryl-C_{1-7}alkyl, unsubstituted or substituted C_{3-20}heterocyclyl, or a linking group to form a multimeric compound in which a plurality of compounds represented by Formula A are covalently bonded together;

independently R_2 and R_3 and/or R_4 and R_5 together can form an aromatic carbon or heterocyclic ring structure,

optionally substituted with one or more aromatic substituents, or R_2, R_3, R_4 and R_5 are independently selected from an aromatic substituent;

R_6 and R_7 are independently selected from hydrogen or independently or together can be a substituent;

R_8 and R_9 are independently selected from hydrogen or independently or together can be a substituent;

wherein when R_{17} and R_{18} are present, they are independently selected from hydrogen or independently or together can be a substituent; and

one of the substituents R_6 and R_7 which is present on the carbon atom at the alpha position to the aromatic ring may form a double bond with one of the substituents R_8 and R_9 or R_{17} and R_{18} which is present on the carbon atom at the beta position to the aromatic ring; and

X^- is an anionic moiety;

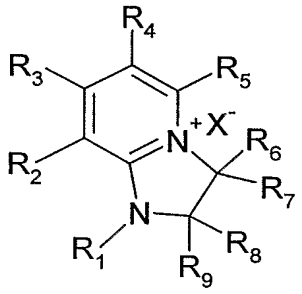
and wherein:

the substituent or substituents are independently selected from halo, hydroxy, oxo, ether, formyl, C_{1-7}alkylacyl, C_{5-20}arylacyl, acylhalide, carboxy, ester, acyloxy, amido, acylamido, thioamido, tetrazolyl, amino, nitro, nitroso, azido, cyano, isocyano, cyanato, isocyanato, thiocyano, isothiocyano, sulfhydryl, thioether, sulfonic acid, sulfonate, sulfone, sulfonyloxy, sulfinyloxy, sulfamino, sulfonamino, sulfinamino, sulfamyl, sulfonamido, C_{1-7}alkyl, C_{1-7}haloalkyl, C_{1-7}hydroxyalkyl, C_{1-7}carboxyalkyl, C_{1-7}aminoalkyl, C_{5-20}aryl-C_{1-7}alkyl, C_{3-20}heterocyclyl, or

C_{5-20}aryl; and

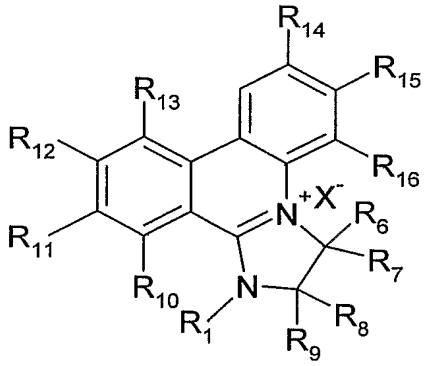
the aromatic substituent or substituents are independently selected from hydrogen, -F, -Cl, -Br, -I, -OH, -OMe, -OEt, -SH, -SMe, -SEt, -C(=O)Me, -C(=O)OH, -C(=O)OMe, $-CONH_2$, -CONHMe, $-NH_2$, $-NMe_2$, $-NEt_2$, $-N(nPr)_2$, $-N(iPr)_2$, -CN, $-NO_2$, -Me, -Et, $-CF_3$, $-OCF_3$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2CH_2NH_2$, -Ph, ether, ester, amido, amino, C_{1-7}alkyl, C_{1-7}haloalkyl, C_{1-7}hydroxyalkyl, C_{1-7}carboxyalkyl, C_{1-7}aminoalkyl, or C_{5-20}aryl-C_{1-7}alkyl.

2. The compound according to claim 1, wherein the compound is represented by Formula Ai:



wherein the substituents are as defined in claim 1.

3. The compound according to claim 1 or claim 2, wherein the compound represented by Formula Aii:



wherein the R_1, R_6, R_7, R_8 and R_9 substituents are as defined in claim 1 and R_{10}, R_{11}, R_{12}, R_{13}, R_{14}, R_{15} and R_{16} substituents are independently selected an aromatic substituent.

4. The compound according to any one of the preceding claims, wherein R_1 is a substituted C_{1-7}alkyl group selected from substituted C_{1-7}alkyl, C_{1-7}haloalkyl, C_{1-7}hydroxyalkyl, C_{1-7}carboxyalkyl, or C_{1-7}aminoalkyl.

5. The compound according to any one of the preceding claims, wherein R_1 is a selected from C_{5-20}aryl, C_{5-20}carboaryl, C_{5-20}heteroaryl, C_{1-7}alkyl-C_{5-20}aryl or C_{5-20}haloaryl, optionally substituted with one or more substituents.

6. The compounds according to any one of the preceding claims which is:

1-(4-Methoxy-benzyl)-2,3-dihydro-1*H*-imidazo[1,2-*f*]phenanthridinium bromide;

1-(2-Hydroxy-ethyl)-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

2,3-Dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-Isopropyl-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-Cyclopropyl-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-(4-Methoxy-phenyl)-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-Phenyl-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-paramethoxyaniline-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-Methoxycarbonylmethyl-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-(1-Methoxycarbonyl-2-phenyl-ethyl)-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-Benzyl-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-(2-Mercapto-ethyl)-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

3-(4-Methoxy-benzyl)-2,3-dihydro-1H-imidazo[1,2-a]quinolin-10-ylium bromide;

1-(4-Methoxy-benzyl)-2,3-dihydro-1H-imidazo[2,1-a]isoquinolin-4-ylium bromide;

1-(4-Methoxy-benzyl)-2,3-dihydro-1H-imidazo[1,2-a]pyridin-4-ylium bromide; 1-Propyl-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-(2-Hydroxy-1-methyl-ethyl)-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-[1-(4-Methoxy-phenyl)-ethyl]-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

7-Bromo-1-(4-methoxy-benzyl)-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-(4-Ethyl-phenyl)-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-Hexyl-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

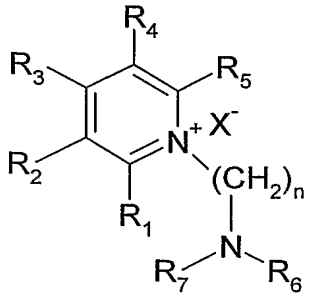
1-Dodecyl-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-Octadecyl-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide;

1-(3,3-Diphenyl-propyl)-2,3-dihydro-1H-imidazo[1,2-f]phenanthridin-4-ylium bromide; or

1-(4-Methoxy-benzyl)-2,3-dihydro-1H-imidazo[1,2-c]quinazolin-4-ylium bromide.

7. A compound represented by Formula B:



wherein:

n is 2 to 5;

R_1 is hydrogen;

independently R_2 and R_3 and/or R_4 and R_5 together can form an aromatic carbon or heterocyclic ring structure, optionally substituted with one or more aromatic substituents, or R_2, R_3, R_4 and R_5 are independently selected from an aromatic substituent;

R_6 and R_7 are independently a substituent or a linking group to form a multimeric compound in which a plurality of compounds represented by Formula A as set out in any one of claims 1 to 7 and/or Formula B are covalently bonded together;

X^- is an anionic moiety;

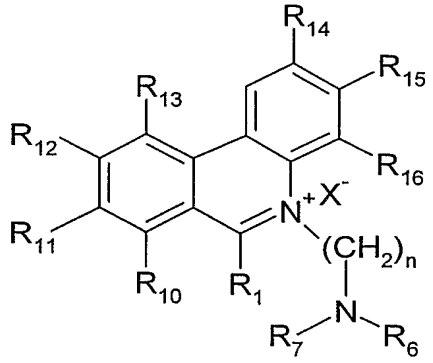
and wherein:

the substituent or substituents are independently selected from halo, hydroxy, oxo, ether, formyl, C_{1-7}alkylacyl, C_{5-20}arylacyl, acylhalide, carboxy, ester, acyloxy, amido, acylamido, thioamido, tetrazolyl, amino, nitro, nitroso, azido, cyano, isocyano, cyanato, isocyanato, thiocyano,

isothiocyano, sulfhydryl, thioether, sulfonic acid, sulfonate, sulfone, sulfonyloxy, sulfinyloxy, sulfamino, sulfonamino, sulfinamino, sulfamyl, sulfonamido, C_{1-7}alkyl, C_{1-7}haloalkyl, C_{1-7}hydroxyalkyl, C_{1-7}carboxyalkyl, C_{1-7}aminoalkyl, C_{5-20}aryl-C_{1-7}alkyl, C_{3-20}heterocyclyl, or C_{5-20}aryl; and

the aromatic substituent or substituents are independently selected from hydrogen, -F, -Cl, -Br, -I, -OH, -OMe, -OEt, -SH, -SMe, -SEt, -C(=O)Me, -C(=O)OH, -C(=O)OMe, $-CONH_2$, -CONHMe, $-NH_2$, $-NMe_2$, $-NEt_2$, $-N(nPr)_2$, $-N(iPr)_2$, -CN, $-NO_2$, -Me, -Et, $-CF_3$, $-OCF_3$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2CH_2NH_2$, -Ph, ether, ester, amido, amino, C_{1-7}alkyl, C_{1-7}haloalkyl, C_{1-7}hydroxyalkyl, C_{1-7}carboxyalkyl, C_{1-7}aminoalkyl, or C_{5-20}aryl-C_{1-7}alkyl.

8. The compound according to claim 7 which is represented by Formula Bi:



wherein:

n is 2 to 5;

R_1 is hydrogen;

R_6 and R_7 are independently hydrogen, a substituent or a linking group to form a multimeric compound in which a

plurality of compounds represented by Formula A and/or Formula B are covalently bonded together;

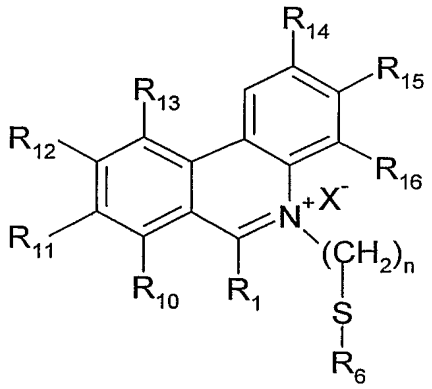
R_{10}, R_{11}, R_{12}, R_{13}, R_{14}, R_{15} and R_{16} are independently selected from hydrogen or an aromatic substituent; and

X^- is an anionic moiety
and wherein:

the substituent or substituents are independently selected from halo, hydroxy, oxo, ether, formyl, C_{1-7}alkylacyl, C_{5-20}arylacyl, acylhalide, carboxy, ester, acyloxy, amido, acylamido, thioamido, tetrazolyl, amino, nitro, nitroso, azido, cyano, isocyano, cyanato, isocyanato, thiocyano, isothiocyano, sulfhydryl, thioether, sulfonic acid, sulfonate, sulfone, sulfonyloxy, sulfinyloxy, sulfamino, sulfonamino, sulfinamino, sulfamyl, sulfonamido, C_{1-7}alkyl, C_{1-7}haloalkyl, C_{1-7}hydroxyalkyl, C_{1-7}carboxyalkyl, C_{1-7}aminoalkyl, C_{5-20}aryl-C_{1-7}alkyl, C_{3-20}heterocyclyl, or C_{5-20}aryl; and

the aromatic substituent or substituents are independently selected from hydrogen, -F, -Cl, -Br, -I, -OH, -OMe, -OEt, -SH, -SMe, -SEt, -C(=O)Me, -C(=O)OH, -C(=O)OMe, $-CONH_2$, -CONHMe, $-NH_2$, $-NMe_2$, $-NEt_2$, $-N(nPr)_2$, $-N(iPr)_2$, -CN, $-NO_2$, -Me, -Et, $-CF_3$, $-OCF_3$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2CH_2NH_2$, -Ph, ether, ester, amido, amino, C_{1-7}alkyl, C_{1-7}haloalkyl, C_{1-7}hydroxyalkyl, C_{1-7}carboxyalkyl, C_{1-7}aminoalkyl, or C_{5-20}aryl-C_{1-7}alkyl.

9. A compound which is represented by the Formula Bii:



wherein:

n is 2 to 5;

R_1 is hydrogen;

R_6 is hydrogen, a substituent; or a linking group to form a multimeric compound in which a plurality of compounds represented by Formula A and/or Formula B are covalently bonded together;

R_{10}, R_{11}, R_{12}, R_{13}, R_{14}, R_{15} and R_{16} are independently selected from hydrogen or an aromatic substituent; and

X^- is an anionic moiety

and wherein:

the substituent or substituents are independently selected from halo, hydroxy, oxo, ether, formyl, C_{1-7}alkylacyl, C_{5-20}arylacyl, acylhalide, carboxy, ester, acyloxy, amido, acylamido, thioamido, tetrazolyl, amino, nitro, nitroso, azido, cyano, isocyano, cyanato, isocyanato, thiocyano, isothiocyano, sulfhydryl, thioether, sulfonic acid, sulfonate, sulfone, sulfonyloxy, sulfinyloxy, sulfamino, sulfonamino, sulfinamino, sulfamyl, sulfonamido, C_{1-7}alkyl,

C_{1-7}haloalkyl, C_{1-7}hydroxyalkyl, C_{1-7}carboxyalkyl, C_{1-7}aminoalkyl, C_{5-20}aryl-C_{1-7}alkyl, C_{3-20}heterocyclyl, or C_{5-20}aryl; and

the aromatic substituent or substituents are independently selected from hydrogen, -F, -Cl, -Br, -I, -OH, -OMe, -OEt, -SH, -SMe, -SEt, -C(=O)Me, -C(=O)OH, -C(=O)OMe, $-CONH_2$, -CONHMe, $-NH_2$, $-NMe_2$, $-NEt_2$, $-N(nPr)_2$, $-N(iPr)_2$, -CN, $-NO_2$, -Me, -Et, $-CF_3$, $-OCF_3$, $-CH_2OH$, $-CH_2CH_2OH$, $-CH_2NH_2$, $-CH_2CH_2NH_2$, -Ph, ether, ester, amido, amino, C_{1-7}alkyl, C_{1-7}haloalkyl, C_{1-7}hydroxyalkyl, C_{1-7}carboxyalkyl, C_{1-7}aminoalkyl, or C_{5-20}aryl-C_{1-7}alkyl.

10. The compound according to any one of claims 7 to 9, wherein n is 2 or 3.

11. The compound according to any one of claims 7 to 10, which is::

5-(2-tert-butylamino-ethyl)-phenanthridinium bromide;
5-(2-Piperidin-1-yl-ethyl)-phenanthridinium bromide;
piperazine phenanthridinium derivatives;
hydroxylamine derivatives;
1,5,9triaza-Cyclododecane;
5-[2-(4-methoxy-benzylsulfanyl)-ethyl]-phenanthridinium bromide.

12. The compound according to any one of the preceding claims, wherein X^- the anionic moiety is selected from halogen, tosylate or mesylate.

13. The compound according to any one of the preceding claims, wherein when the R_2 and R_3 and/or R_4 and R_5 substituents are present, one or both of these pairs of substituents together form an aromatic carbon or

heterocyclic ring structure, optionally substituted with one or more aromatic substituents.

14. The compound according to any one of the preceding claims, wherein the compounds forming the multimeric compound are covalently bonded together via their respective R_1 substituents (Formula A) or via their R_6 or R_7 substituents (Formula B) or via a spacer group.

15. A multimeric compound formed by covalently linking two or more of the same or different compounds according to any one of the preceding claims

16. The multimeric compound according to claim 15, wherein compounds of Formula A are linked via the R_1 substituent and/or compounds represented by Formula B are linked via the R_6 and/or R_7 substituents.

17. The multimeric compound according to claim 15 or claim 16, wherein, where the compounds of Formula B are linked via the R_6 and R_7 substituents, the resulting linkage forms a cycloalkyl group.

18. The multimeric compound according to any one of claims 15 to 17, wherein the compounds are covalently bonded via a linker group or linker groups.

19. The multimeric compound according to claim 18, wherein the linker groups is a C_{1-7} alk-di-yl group bonded to another group of Formula A or B in place of R_1 thereof; a piperazin-di-yl group bonded to another group of Formula A or B in place of R_1 thereof; a (N,N-C_{1-6} dialkylene) C_{1-7} alkylene amine bonded to two other groups of Formula A or B in place of R_1 thereof; or a cyclo (C_{4-8}) alk-tri-yl

group bonded to two other groups of Formula A' or B in place of R_3 thereof.

20. The multimeric compound according to any one of claims 15 to 17, wherein the multimeric compound is a dimer, trimer or tetramer of the compounds according to any one of claims 1 to 14.

21. The multimeric compound according to any one of claims 13 to 18, wherein the compounds of Formula A and/or B are covalently bonded to a spacer group.

22. The multimeric compound according to claim 19 in which 2 or more, 3 or more, 4 or more, 5 or more, 10 or more, 20 or more, 50 or more, or 100 or more compounds represented by Formula A or B are covalently linked via one or more spacer groups.

23. The multimeric compound according to claim 19 or claim 20, wherein the spacer group is a polyamine compound comprising an alkyl chain having a plurality of amine groups for reacting with the compounds of Formula A an/or B.

24. The multimeric compound according to any one of claim 15 to 21, wherein the compound is a selected from:

Dimers:

Ethylene diamine derivative with two groups of Formula A.

Hydroxylamine derivative with two groups of Formula B.

Piperazine derivative with two groups of Formula B.

DIP dimer derived from the spacer N1-(2-Amino-ethyl)-ethane-1,2-diamine

DIP dimer derived from the spacer 2-Amino-1-[4-(2-amino-acetyl)-piperazin-1-yl]-ethanone

DIP dimer derived from the spacer 2-[4-(2-Amino-ethyl)-piperazin-1-yl]-ethylamine

Phenanthridinium dimer derived from the spacer 2-[4-(2-Amino-ethyl)-piperazin-1-yl]-ethylamine

Trimers:

Tris (2-aminoethylamine) derivatives with three groups of Formula A

Cis-triaminocyclohexane derivatives with three groups of Formula A.

2-Amino-1-[5,9-bis-(2-amino-acetyl)-1,5,9triaza-cyclododec-1-yl]-ethanone derivative with three groups of Formula A.

2-[5,9-Bis-(2-amino-ethyl)-1,5,9triaza-cyclododec-1-yl]-ethylamine derivative with three groups of Formula A.

1,5,9-triaza-cyclododecane derivative with three groups of Formula B.

DIP trimer derived from the spacer 2-Amino-1-[5,9-bis-(2-amino-acetyl)-1,5,9triaza-cyclododec-1-yl]-ethanone

DIP trimer derived from the spacer Cyclohexane-1,3,5-triamine

Phenanthridinium trimer derived from the spacer 2-[5,9-Bis-(2-amino-ethyl)-1,5,9triaza-cyclododec-1-yl]-ethylamine

Tetramers:

Tetrakis-(6-amino-hexyl)-ammonium bromide derivative with four groups of Formula A.

25. A composition comprising one or more compounds according to any one of the preceding claims.

26. A compound according to any one of claims 1 to 22 for use in a method of therapy or diagnosis.

27. Use of a compound according to any one of claims 1 to 22 as a DNA cross-linking agent, a DNA binding agent, a telomere binding agent, a biological probe or a diagnostic probe.

28. Use of a compound according to any one of claims 1 to 22 for the preparation of a medicament for the treatment of a condition treatable by an anti-cancer agent, an anti-inflammatory agent, an antiprotozoal agent, or a topoisomerase inhibitor.

29. The use according to claim 26, wherein the medicament is for the treatment of cancer.

30. Use of a compound according to any one of claims 1 to 22 as a synthetic agent, a reducing agent, a chiral

reducing reagent, an amine protecting group, a phase transfer catalyst, or a chiral resolving agent for purification or crystallisation.

31. Use of a compound according to any one of claims 1 to 22 as an electronic material, a photochemically active agent or sensor or as molecular switching device.

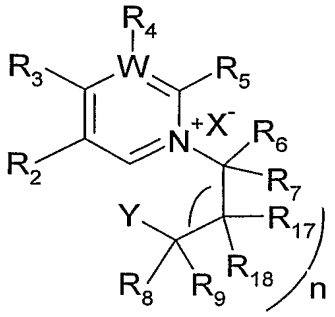
32. A method of synthesising a heterocyclic aromatic cationic compound with an additional ring, the method comprising reacting a heterocyclic aromatic cationic compound comprising a ring nitrogen and at least one alpha hydrogen atom with a substituted or unsubstituted primary amine, a sulphate or a hydroxide, wherein the primary amine, sulphate or hydroxide reacts with the heterocylic aromatic compound by alpha addition, cyclisation and an oxidation step thereby providing the heterocyclic aromatic compound with an additional ring.

33. The method according to claim 30, wherein the additional ring is a five membered ring.

34. The method according to claim 30 or claim 31, wherein the reaction is a one pot reaction.

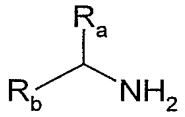
35. The method according to any one of claims 30 to 32, wherein the method is for making a compound represented by Formula A as defined in claim 1 and comprises:

reacting a heterocyclic aromatic compound represented by the Formula A':



wherein Y is a leaving group and n and the remaining substituents are as defined in claim 1;

with a primary amine represented by the formula:

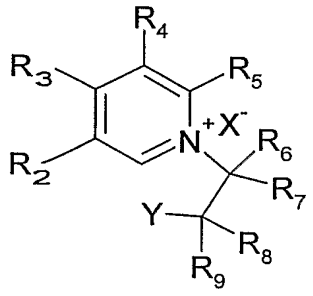


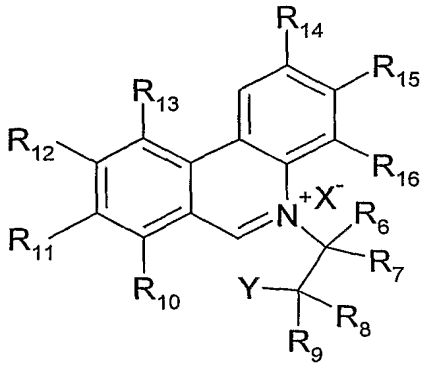
wherein the R_a-C-R_b substituents of the primary amine forms the group R_1 in the final compound;

the primary amine reacting with the phenanthridinium compounds of Formula A' by addition, cyclisation and oxidation to produce a compound represented by Formula A.

36. The method according to any one of claims 30 to 33, wherein the method is for making a compound represented by Formula Ai or Aii as defined in claim 2 or claim 3 and comprises:

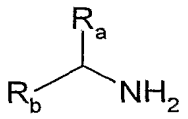
reacting a heterocyclic aromatic compound represented by the Formula Ai' or Aii' respectively:





wherein Y is a leaving group and the remaining substituents are as defined in claim 2 or claim 3;

with a primary amine represented by the formula:



wherein the R_a-C-R_b substituents of the primary amine forms the group R_1 in the final compound;

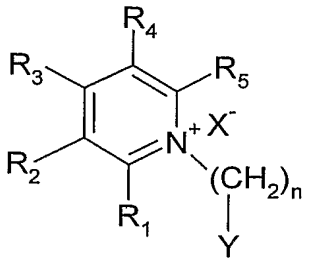
the primary amine reacting with the phenanthridinium compounds of Formula Ai' by addition, cyclisation and oxidation to produce a compound represented by Formula Ai.

37. The method according to any one of claims 30 to 34, wherein the method uses a primary amine which (1) has no substituents in the alpha position, or (2) has a primary carbon in the alpha position, or (3) has a secondary carbon in the alpha position), or (4) has a tertiary carbon in the alpha position, or (5) is or derives from an amino acid.

38. The method according to any one of claims 30 to 34, wherein the primary amine is an aromatic amines, such as naphthalen-1-ylamine or anthracen-9-ylamine.

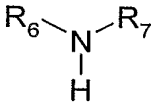
39. A method of making compounds represented by Formula B as defined in claim 7, the method comprising:

reacting a heterocyclic aromatic compound represented by the Formula B':



wherein Y is a leaving group and the remaining substituents are as defined in claim 7;

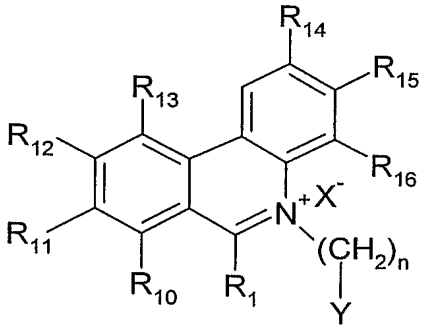
with a secondary amine represented by the Formula:



the secondary amine reacting with the compound of Formula B' to produce a compound represented by Formula B.

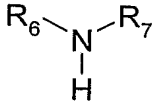
40. The method according to claim 37 for making compounds represented by Formula Bi as defined in claim 8, the method comprising:

reacting a heterocyclic aromatic compound represented by the Formula Bi':



wherein Y is a leaving group and the remaining substituents are as defined in claim 8;

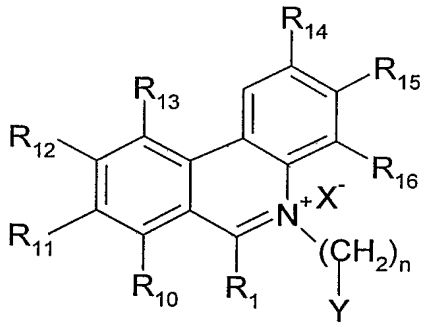
with a secondary amine represented by the formula:



the secondary amine reacting with the compound of Formula Bi' by to produce a compound represented by Formula Bi.

41. A method of making compounds represented by Formula Bii as defined in claim 9, the method comprising:

reacting a heterocyclic aromatic compound represented by the Formula Bii':



with a sulphur containing compound such as substituted or unsubstituted thiol to produce a compound represented by Formula Bii.

42. The method according to any one of claims 30 to 39, further comprising the step of forming a multimeric compound according to any one of claim 15 to 22.